# ST. MARY'S UNIVERSITY

# FACULTYOFBUSINESS

# DEPARTMENT OF MANAGEMENT


# AN ASSESSMENT OF IMPLEMENTATION OF KAIZEN: THE CASE OF MARU METAL INDUSTRIES


**BY**

**KIDUS DESSALEGN**



JULY, 2014

SMU

ADDIS ABABA

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APPROVED BY THE COMMITTEE OF EXAMINERS

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# Table of Contents

**Page**

## List of Tables

**Page**

# CHAPTER ONE

# INTRODUCTION

## 1.1 Background of the study

The term Kaizen was coined from two Japanese words ‘Kai’ and ‘Zen’ which means Improvement or change for the better. Kaizen is widely known as the key to Japanese competitive success. The essence of this management philosophy is continuous improvement involving every work force in an organization. The inception of Kaizen dates back to the end of the Second World War. After the defeat of the axis powers (Japan, Italy and Germany ), Japan was on an aggressive campaign to rehabilitate the country, American aid to help the country’s reconstruction brought in experts from every discipline. The Economic and Scientific Section (ESS) group was such a group established to help improve Japanese Management skills, this group had a training film to introduce the three "J" programs (Job Instruction, Job Methods and Job Relations) the film was titled "Improvement in 4 Steps" (Kaizen eno Yon Dankai in Japanese) This was the original introduction of the word "Kaizen" to Japan.(Massaki Imai, 1986).

The guru of Kaizen Massaki Imai wrote in his book titled: Gemba Kaizen, kaizen assumes work life as well social life should be on a constant basis of improvement. The Japanese people are doing this so well they don’t even realize they’re doing it, it has become a way of life for them.

Kaizen could be better understood by comparing it with conventional Management thinking. Conventional Management sees the source of the problem as the employees while Kaizen views the process as the problem. Kaizen is about getting the objective done unlike the conventional Management where one is focused on what he thinks is his job not the objective of the job. Kaizen is about measuring the performance not the individuals. Conventionally when things aren’t going as they’re supposed to Managers think of changing the worker but Kaizen gives emphasis on changing the process. Conventional Managers ask who made the error but Kaizen asks what allowed the error to occur. (THESSALONIKI, 2006)

One of the unique things about Kaizen is that it’s not only about increasing productivity but also improving the lives of the workers. It gives high emphasis on standardization of process but

standardization doesn't mean stagnation, in fact Kaizen is about a never ending improvement process, it underlies that no process is perfect and that it can never be perfect, there is always room for improvement.

Massaki Imai stated the cycle of Kaizen activities in the following manner: Standardize an operation and activities, measure the operation (find cycle time and amount of in-process inventory), gauge measurements against requirements, innovate to meet requirements and increase productivity, standardize the new, improved operations, continue cycle *ad infinitum.* This cycle is also known as the Shewhart cycle, Deming cycle, or PDCA.

In recent years many developing countries have realized the potential of Kaizen and are trying to implement it in their various industries, Ethiopia is such a country. In 2008 Egypt and Tunisia had implemented Kaizen and were evaluating their performance with the Japanese government, it was then that delegates from the Ethiopian government requested the Japanese government to introduce the Management Philosophy in Ethiopia. With the support of the JICA (Japan International Cooperation Agency) it was pilot tested on 30 Companies which were mostly located in and around 100 kilometer radius of Addis Ababa but there were companies such as Muger cement which were a further than the captial, the result was promising, out of the thirty companies Kaizen was pilot tested on twenty eight were successful it is with this promising result that the Ethiopian government decided to promote Kaizen in the Manufacturing sector.

To widen the spread and insure the continuity of Kaizen the Ethiopian Kaizen Institute (EKI) was established by the council of Ministers order number 256/2004.

The EKI is following three levels of implementation: Management oriented, group oriented and individual oriented. The introduction of foreign Management philosophies is nothing new to Ethiopia, what will be new though is to insure continuity. Kaizen, like stated above is not just another Management thought, rather it's a way of life and so it needs a long term commitment in order to make it work. This study will be conducted at Maru Metal Industry (MMI) which is one of the first Ethiopian companies to implement Kaizen.

Maru Metal Industry (MMI) was established by AtoMaruTefera and started operation in 1975. As a small workshop MARU's first business was manufacturing metal doors, windows, fences

and beds and later shifted to constructing trusses, silos, mobile houses etc . . . after developing its engineering capability and gathering enough experience on the field it moved in the production of more sophisticated fabrications and made a niche for itself for the sector of industrial vehicles like cargo bodies and vans as import substitution. Again after gaining sufficient experience moved on the production of complete drawbar trailers, semi-trailers, low beds etc . . . . Being the first to produce the same in the country and now Maru Metal Industry is one of the largest metal industries in Ethiopia.

MMI has two production plants, one in Addis Ababa, Kera sub city and the other at Kaliti sub city; in addition to these two plants the company has two warehouses in Adama (Nazereth) and Mekele. The company has a capital of 5,500,000 birr and total asset above 200,000,000 birr, MMI works with most of the private banks in Ethiopia.

MMI provides services, designs, fabrications/development of different transport, advanced steel structures, and industrial products, production and maintenance of engineering systems, erection and commissioning of different plats in construction, industrial and construction equipment, machineries, automotive and custom made products.

MMI adapted Kaizen to insure continuous and sustainable quality improvement. The company is exemplary in adopting Kaizen and was visited by H.E Mr. Takeaki Matsumoto, state secretary of Ministry of foreign Affairs (Feb 2011).

## 1.2 Statement of the Problem

The introduction and origin of Kaizen was after the WWII but the idea that Kaizen encompasses goes far beyond the Second World War. Dr. Robert Maurer, in his lecture: *'one small step can change your life'* stated that the idea of small incremental changes was first stated by the philosopher Lao Tzu who is known for his famous quote: "a *journey of a thousand miles begins with a single step ".*

Kaizen is the success story of Toyota and many other Japanese manufacturing companies, this Management philosophy played a vital role in transforming Japan from ruins to the third largest economy in the world (next to USA and China). Kaizen first got worldwide acclaim when

Toyota by passed General Motors to become the largest automobile producer in the world. (Jeffery K. Liker, 2004).

In an edition of Addis Standard Vol. 2 Issue No. 23 January, 2013, Dr. TayeNegussie argued that despite the promising results it is highly unlikely that Kaizen will be feasible in the current political, cultural and economic conditions of Ethiopia.

The implementation of kaizen in Ethiopian production companies is a recent phenomenon. The Japanese, according Jeffery Liker took them four decades to show the effectiveness of kaizen (from 1945-1980s) but in Ethiopia it is already declared by the EKI that Kaizen is working. The problem that usually arises when implementing a new working system is proper handling of the conflicts that arises and asserting the new system to the lowest level of employees, when we especially consider kaizen the low level employees are the key to improving production thus should be empowered, the management should be more flexible and most of all there has to be a better incentive system. Judging from the experience of Japan and other countries kaizen is a long term commitment and needs to be implemented in our daily lives for it to be natural but our culture is entirely different from kaizen and needs more understanding and commitment to change it.

## 1.3 Research Questions

This research will try to answer the following questions:

1. What is the understanding of Kaizen among the workforce?
2. What were the problems faced by the company while implementing Kaizen?
3. What is the effect of Kaizen on production efficiency?
4. What conflict arose between Kaizen and previous Management practice?

### 1.4 Objective of the Study

#### 1.4.1 General Objective

The general objective of this research is to assess the implementation and continuity of Kaizen at Maru Metal Industry.

### 1.4.2 Specific Objective

1. To find out the level of understanding of Kaizen on every level of the company.
2. To identify the problems the company faced during implementation.
3. To know whether Kaizen has really met its goal in terms of production efficiency or not.
4. To contrast the changes Kaizen Management brought with the previous Management and leadership style.

## 1.5 Delimitation of the study

This research is limited to Maru Metal Industry and furthermore the study is limited to the Production and operations branch which is located at Kaliti.

The research is focused on the practice of implementation on the lower level, meaning the workers who are on the front line of the production process and who have worked in this company for five years or more.

## 1.6 Significance of the study

This study is significant for Maru Metal Industry because it tried to determine the implementation of Kaizen on the company and whether it be a continuous effect or not. The research is helpful to widen the knowledge base of the student researcher and serves as a partial fulfillment of Bachelors of Arts in Management. It is also a good edition to the University's student researches pool.

## 1.7 Research Design and Methodology

### 1.7.l Research Design

This research is a descriptive research; it tried to describe the implementation and the continuity of Kaizen and its impact on the working habits of the employees at Maru Metal Industry.

### 1.7.2 Population, sample size and Sampling Technique

The sampling technique employed in this research is convenience sampling because the research is focused on a single company which has defined number of workers, at a specific location. The company has a total of 360 permanent employees at two branches, my focus is on employees who work at the production and operation branch which are a total of 267 employees, I have taken 30% of these employees for this research.

### 1.7.3 Types of data collected

For this research both primary and secondary data were used in order to make the research more subsistent and reliant.

**a. Primary Sources of Data**

Data was collected using questionnaires and interview. Questionnaires were dispersed for every worker who is involved in the company's manufacturing department. Interview was conducted with top level Management and staff.

**b. Secondary Source of Data**

Secondary source of data were from books, journals, Magazines, lectures and audio books.

### 1.7.2 Method of Data collection

Data was collected from two parties; the first were from the employees of Maru Metal Industry who work in the front lines of the production because they are the main contributors to make improvements on the production process and the second is from the management of the company. Questionnaires were collected from employees while interview was conducted with the management.

### 1.7.5 Method of Data Analysis

The analysis of data was done by means of mixed method but will focus on qualitative rather than quantitative because the qualitative method is more suited for the analysis of implementation, impact and behavioral changes but this doesn't mean it will depend entirely on qualitative there was also be quantitative analysis which was mainly done by use of SPSS V16 software.

## 1.8 Limitation of the study

The main limitation of this study was not getting all the questionnaires at the requested time, meaning there were some unreturned questionnaires. The other limitation is not having all the requested information from the company, by this it is meant that some of the information requested were confidential.

## 1.9 Organization of the Study

The study is organized in to four chapters. The first chapter includes background of the study, Statements of the problem, objectives, significance of the study and methodology. The second chapter discusses the different literatures written on the subject matter of the study.

The third chapter consists of the major presentation, analysis and interpretation of the data collected. Finally in chapter four summary of findings, conclusion and recommendation of the study is made.

# CHAPTER TWO

# LITERATURE REVIEW

## 2.1 Definition

"In Japanese, *kaizen* means "continuous improvement." The word implies improvement that involves everyone—both managers and workers—and entails relatively little expense. The *kaizen* philosophy assumes that our way of life—be it our working life, our social life, or our home life—should focus on constant improvement efforts. This concept is so natural and obvious to many Japanese that they don't even realize they possess it! In my opinion, *kaizen* has contributed greatly to Japan's competitive success." (Imai 1986)

"The Kaizen Event is an effective tool for moving past "analysis paralysis," tying improvements to a larger strategy, and involving all the necessary perspectives to create relevant, measurable, and sustainable improvements. The Kaizen Event is a *two- to five-dayfocused improvement activity during which a sequestered, cross-functional team designsand fully implements improvements to a defined process or work areal*' (Marin and Osterling 2007: 3-4)

"Kaizen means improvement, continuous improvement involving everyone in the organization from top management, to managers then to supervisors, and to workers. In Japan, the concept of Kaizen is so deeply engrained in the minds of both managers and workers that they often do not even realize they are thinking Kaizen as a customer-driven strategy for improvement**.**

This philosophy assumes according Imai that ''our way of life - be it our working life, our social life or our home life - deserves to be constantly improved'' (Thessaloniki 2006: 1) **Remark:** All the definitions from various literatures give the similar meaning which is continuous improvement.

## 2.2 Kaizen and Management

In the context of *kaizen,* management has two major functions: maintenance and improvement. *Maintenance* refers to activities directed toward maintaining current techno logical, managerial, and operating standards and upholding such standards through training and discipline. Under its maintenance function, management performs its assigned tasks so that everybody can follow

standard operating procedures (SOPs). *Improvement,* meanwhile, refers to activities directed toward elevating current standards. The Japanese view of management thus boils down to one precept: Maintain and improve standards.

### *2.2.1 Process versus Result*

*Kaizen* fosters process- oriented thinking because processes must be improved for results to improve. Failure to achieve planned results indicates a failure in the process. Management must identify and correct such process- based errors. *Kaizen* focuses on human efforts—an orientation that contrasts sharply with the results- based thinking in the West. A process-oriented approach also should be applied in the introduction of the various *kaizen* strategies: the plan- do-check-act (PDCA) cycle; the standardize-do-check-act (SDCA) cycle; quality, cost, and delivery (QCD); total quality management (TQM); just-in-time (JIT); and total productive maintenance (TPM). *Kaizen* strategies have failed many companies simply because they ignored process. The most crucial element in the *kaizen* process is the commitment and involvement of top management. It must be demonstrated immediately and consistently to ensure success in the *kaizen* process. (Imai 1986)

## 2.3 The three Pillars of Kaizen

"According to M. Imai, a guru in these management philosophies and practices , the three pillars of kaizen are summarized as follows:

1. Housekeeping

2. Waste elimination

3. Standardization and as he states, the management and employees must work together to fulfill the requirements for each category. To be ensured success on activities on those three pillars three factors have also to be taken account:

1. Visual management,

2. The role of the supervisor,

3. The importance of training and creating a learning organization." (Thessaloniki 2006: 6-8)

**Remark:** Many authors in this area give from three to five pillars of Kaizen but the most prominent of them all Massaki Imai summarized them into three. I chose his three pillars because they give better sense to the average reader. Each of the three pillars has their own details. The following is a quote from the same book, explaining each pillar in detail.

### 2.3.1 Housekeeping

This is a process of managing the work place, known as "Gemba" (workplace) in Japanese, for improvement purposes .Imai introduced the word "Gemba", which means "real place", where value is added to the products or services before passing them to next process where they are formed.

For proper housekeeping a valuable tool or methodology is used , the 5S methodology. The term **"Five S"** is derived from the first letters of Japanese words referred to five practices leading to a clean and manageable work area: seiri (organization), seiton (tidiness), seiso (purity), seiketsu (cleanliness), and shitsuke (discipline). The English words equivalent of the 5S's are sort, straighten, sweep, sanitize, and sustain. 5S evaluations provide measurable insight into the orderliness of a work area and there are checklists for manufacturing and nonmanufacturing areas that cover an array of criteria as i.e. cleanliness, safety, and ergonomics.

Five S evaluation contributes to how employees feel about product, company, and their selves and today it has become essential for any company, engaged in manufacturing, to practice the 5S's in order to be recognized as a manufacturer of world-class status.

**Remark:** Most companies especially companies operating in Ethiopia don't consider these 5S's as crucial part of their operation. It's common place to see piled up junk in most production companies, especially those engaged in metal manufacturing. Kaizen gives high emphasis to those simple things which are by passed by conventional management system.

### 2.3.2 Waste (Muda) Elimination.

Muda in Japanese means waste. The resources at each process — people and machines either add value or do not add value and therefore, any non-value adding activity is classified as muda in Japan. Work is a series of value-adding activities, from raw materials, ending to a final product. Muda is any non-value-added task.

**Remark:** waste elimination is not an idea unique to kaizen but what differentiates it from others is the classification Kaizen gives which enables business to establish better waste Management and integrate it with their daily operations.

A. **Muda of overproduction.** Overproduction may arises from fear of a machine's failure, rejects, and employee absenteeism. Unfortunately, trying to get ahead of production can result in tremendous waste, consumption of raw materials before they are needed, wasteful input of manpower and utilities, additions of machinery, increased burdens in interest, additional space to store excess inventory, and added transportation and administrative costs.

B. **Muda of inventory.** Final products, semi finished products, or part supplies kept in inventory do not add any value. Rather, they add cost of operations by occupying space, requiring additional equipment and facilities such as warehouses, forklifts, and computerized conveyer systems .Also the products deteriorate in quality and may even become obsolete overnight when market changes or competitors introduce a new product or customers change their taste and needs. Warehouses further require additional manpower for operation and administration. Excess items stay in inventory and gather dust (no value added), and their quality deteriorates over time. They are even at risk of damage through fire or disaster. Just-in-time (JIT) production system helps to solve this problem.

C. **Muda of defects (repair or rejects).** Rejects, interrupt production and require rework and a great waste of resources and effort .Rejects will increase inspection work, require additional time to repair, require workers to always stand by to stop the machines, and increase of course paperwork.

D. **Muda of motion.** Any motion of a person not directly related to adding value is unproductive. Workers should avoid walking, lifting or carrying heavy objects that require great physical exertion because it is difficult, risky, and represents non-value added activities. Rearranging the workplace would eliminate unnecessary human movement and eliminate the requirement of another operator to lift the heavy objects. Analysis of operators' or workers leg and hand motions in performing their work will help companies to understand what needs to be done.

E. **Muda of processing.** There are many ways that muda can happen in processing. For example, failure to synchronize processes and bottlenecks create muda and can be eliminated by redesigning the assembly lines so, utilizing less input to produce the same output. Input here refers to resources, utilities, and materials. Output means items such as products, services, yield, and added value. Reduce the number of people on the line; the fewer line employees the better. Fewer employees will reduce potential mistakes, and thus create fewer quality problems. This does not mean that we need to dismiss our employees. There are many ways to use former line employees on Kaizen activities, i.e., on value-adding activities. When productivity goes up, costs will go down. In manufacturing, a longer production line requires more workers, more work-in-process and a longer lead-time. More workers also means a higher possibility of making mistakes, which leads to quality problems. More workers and a longer lead-time will also increase cost of operations.

   Machines that go down interrupt production. Unreliable machinery necessitates batch production, extra work-in-process, extra inventory, and extra repair efforts. A newly hired employee without proper training to handle the equipment can consequently delay operation, which may be just as costly as if the equipment were down. Eventually, quality will suffer and all these factors can increase operation costs.

F. **Muda of waiting.**Muda of waiting occurs when the hands of the operator are idle; when an operator's work is put on hold because of line imbalances, a lack of parts, or machine downtime; or when the operator is simply monitoring a machine as the machine performs a value-adding job. Watching the machine, and waiting for parts to arrive, are both muda and waste seconds and minutes. Lead time begins when the company pays for its raw materials and supplies, and ends when the company receives payment from customers for products sold. Thus, lead time represents the turnover of money. A shorter lead time means better use of resources, more flexibility in meeting customer needs, and a lower cost of operations. Muda elimination in this area presents a golden opportunity for Kaizen.

G. **Muda of transportation**^ workplace, gemba, one notices all sorts of transport by such means as trucks, forklifts, and conveyors. Transportation is an essential part of operations, but moving materials or products adds no value. Even worse, damage often

occurs during transport. To avoid muda, any process that is physically distant from the main line should be incorporated into the line as much as possible, Because eliminating muda costs nothing, muda elimination is one of the easiest ways for a company to improve its Gemba's operations. (Thessaloniki, 2006:18-24)

**Remark:** When we talk about waste elimination in Kaizen we're referring to these seven Mudas. The Ethiopian Kaizen institute states these seven wastes in Amharic on manual which prepared as an easy guide to Kaizen.

### 2.3.3 Standardization

Standards are set by management, but they must be able to change when the environment changes. Companies can achieve dramatic improvement as reviewing the standards periodically, collecting and analyzing data on defects, and encouraging teams to conduct problem-solving activities. Once the standards are in place and are being followed then if there are deviations, the workers know that there is a problem. Then employees will review the standards and either correct the deviation or advise management on changing and improving the standard. It is a never-ending process and is better explained and presented by the PDCA cycle (plan-do-check-act), known as Demming cycle. (Thessaloniki, 2006: 26)

**Remark:** The most formidable guru of Kaizen is Massaki Imai. Most books about the subject are either written by him or in reference to his writings. The Demming cycle is clarified in his book Gemba: a common sense to Kaizen.

### *Following the PDCA/SDCA Cycles*

The first step in the *kaizen* process establishes the *plan- do- check-act (PDCA) cycle* as a vehicle that ensures the continuity of *kaizen* in pursuing a policy of maintaining and improving standards. It is one of the most important concepts of the process.

Plan refers to establishing a target for improvement (since *kaizen* is a way of life, there always should be a target for improvement in any area) and devising action plans to achieve that target. *Do* refer to implementing the plan. *Check* refers to determining whether the implementation remains on track and has brought about the planned improvement. *Act* refers to performing and

standardizing the new procedures to prevent recurrence of the original problem or to set goals for the new improvements. The PDCA cycle revolves continuously; no sooner is an improvement made than the resulting status quo becomes the target for further improvement. PDCA means never being satisfied with the status quo. Because employees prefer the status quo and frequently do not have initiative to improve conditions, management must initiate PDCA by establishing continuously challenging goals.

In the beginning, any new work process is unstable. Before one starts working on PDCA, any current process must be stabilized in a process often referred to as the *standardize- do- check- act (SDCA) cycle.*

Every time an abnormality occurs in the current process, the following questions must be asked: Did it happen because we did not have a standard? Did it happen because the standard was not followed? Or did it happen because the standard was not adequate? Only after a standard has been established and followed, stabilizing the current process, should one move on to the PDCA cycle.

Thus the SDCA cycle standardizes and stabilizes the current processes, whereas the PDCA cycle improves them. SDCA refers to maintenance, and

PDCA refers to improvement; these become the two major responsibilities of management. (Imai, 1986)

**Remark:** As the researcher has indicated in chapter one's introduction part, Kaizen was invented by carefully analyzing other Management Processes which were under operation before it. Imai has summarized constituents of Kaizen as follows.

## 2.4 Major *Kaizen* Systems

The following are major systems that should be in place in order to successfully achieve a *kaizen* strategy: Total quality control (TQC)/total quality management (TQM), just -in- time (JIT) production system (Toyota Production System), total productive maintenance (TPM), policy deployment, suggestion system and small -group activities.

### *2.4.1Total Quality Control/Total Quality Management*

One of the principles of Japanese management has been total quality control (TQC), which, in its early development, emphasized control of the quality process. This has evolved into a system encompassing all aspects of management and is now referred to as *total quality management* (TQM), a term used internationally.

Regarding the TQC/TQM movement as a part of *kaizen* strategy gives us a clearer understanding of the Japanese approach. Japanese TQC/TQM should not be regarded strictly as a quality-control activity; TQC/TQM has been developed as a *strategy* to aid management in becoming more competitive and profitable by helping it to improve in all aspects of business.

In TQC/TQM, *Q,* meaning "quality," has priority, but there are other goals, too—namely, cost and delivery. The *T* in TQC/TQM signifies "total," meaning that it involves everybody in the organization, from top management through middle managers, supervisors, and shop-floor workers. It further extends to suppliers, dealers, and wholesalers. The *T* also refers to top management's leadership and performance—so essential for successful implementation of TQC/TQM.

The *C* refers to "control" or "process control." In TQC/TQM, key processes must be identified, controlled, and improved on continuously in order to improve results. Management's role in TQC/TQM is to set up a plan to check the process against the result in order to improve the process, not to criticize the process on the basis of the result.

TQC/TQM in Japan encompasses such activities as policy deployment, building quality-assurance systems, standardization, training and education, cost management, and quality circles.

### *2.4.2 The Just- in-Time Production System*

Originating at Toyota Motor Company under the leadership of TaiichiOhno, the just- in- time (JIT) production system aims at eliminating non value- adding activities of all kinds and achieving a lean production system that is flexible enough to accommodate fluctuations in customer orders.

This production system is supported by such concepts as takttime (the time it takes to produce one unit) versus cycle time, one -piece flow, pull production, _/'idoka(“autonomation”), U-shaped cells, and setup reduction.

To realize the ideal JIT production system, a series of *kaizen* activities must be carried out continuously to eliminate non-value- adding work in *gemba.* JIT dramatically reduces cost, delivers the product in time, and greatly enhances company profits.

### *2.4.3Total Productive Maintenance*

An increasing number of manufacturing companies now practice *total productive maintenance* (TPM) within as well as outside of Japan. WhereasTQM emphasizes improving overall management performance and quality,

TPM focuses on improving equipment quality. TPM seeks to maximize equipment efficiency through a total system of preventive maintenance spanning the lifetime of the equipment.

Just as TQM involves everybody in the company, TPM involves every - body at the plant. The five S of housekeeping (discussed in Chapter 5), another pivotal activity in *gemba,* may be regarded as a prelude to TPM.

However, 5 S activities have registered remarkable achievements in many cases even when carried out separately from TPM.

### *2.4.4 Policy Deployment*

Although *kaizen* strategy aims at making improvements, its impact may be limited if everybody is engaged in *kaizen* for *kaizen's* sake without any aim.

Management should establish clear targets to guide everyone and make certain to provide leadership for all *kaizen* activities directed toward achieving the targets. Real *kaizen* strategy at work requires closely supervised implementation. This process is called Policy Deployment, or in Japanese, *hoshinkanri.* First, top management must devise a long- term strategy, broken down into medium- term and annual strategies. Top management must have a plan-to-deploy strategy, passing it down through subsequent levels of management until it reaches the shop floor. As the

strategy cascades down to the lower echelons, the plan should include increasingly specific action plans and activities. For instance, a policy statement along the lines of "We must reduce our cost by 10 percent to stay competitive" may be translated on the shop floor to such activities as increasing productivity, reducing inventory and rejects, and improving line configurations.

*Kaizen* without a target would resemble a trip without a destination. *Kaizen* is most effective when everybody works to achieve a target, and management should set that target.

### *2.4.5 The Suggestion System*

The *suggestion system* functions as an integral part of indiviual-oriented *kaizen* and emphasizes the morale- boosting bene fits of positive employee participation. Japanese managers see its primary role as that of sparking employee interest in *kaizen* by encouraging them to provide many suggestions, no matter how small. Japanese employees are often encouraged to discuss their suggestions verbally with supervisors and put them into action right away, even before submitting suggestion forms. They do not expect to reap great economic benefits from each suggestion. Developing *kaizen* -minded and self-disciplined employees is the primary goal. This outlook contrasts sharply with that of Western management's emphasis on the economic benefits and financial incentives of suggestion systems.

### *2.4.6 Small -Group Activities*

A *kaizen* strategy includes *small -group activities*—informal, voluntary, Intra company groups organized to carry out specific tasks in a workshop environment. The most popular type of small-group activity is *quality circles.* Designed to address not only quality issues but also such issues as cost, safety, and productivity, quality circles may be regarded as group oriented *kaizen* activities. Quality circles have played an important part in improving product quality and productivity in Japan. However, their role often has been blown out of proportion by overseas observers, who believe that these groups are the mainstay of quality activities in Japan.

Management plays a leading role in realizing quality—in ways that include building quality-assurance systems, providing employee training, establishing and deploying policies, and building cross -functional systems for QCD. Successful quality-circle activities indicate that management plays an invisible but vital role in supporting such activities. (Imai 1986)

**Remark:** it's the integration of all these factors that makes Kaizen successful, doing one without the other is impossible or should I say it wouldn't work as a system. Massaki Imai didn't involve the above mentioned six Kaizen systems in his earlier book title Kaizen, the key to Japanese continuous success. In his more recent book: Gemba Kaizen he wrote these systems because Kaizen by its nature is an evolving and changing philosophy. From TQM to small groups activities ensure that the company stays on track with its Kaizen implementation.

### 2.5 The Ultimate Goal of *Kaizen* Strategy

Since *kaizen* deals with improvement, we must know which aspects of business activities need to be improved most. And the answer to this question is quality, cost, and delivery (QCD). My previous book, *Kaizen:The Key to Japan's Competitive Success,* used the term *quality, cost,* and *scheduling* (QCS). Since that time, QCD has replaced QCS as the commonly accepted terminology.

*Quality* refers not only to the quality of finished products or services but also to the quality of the processes that go into those products or services.

*Cost* refers to the overall cost of designing, producing, selling, and servicing the product or service. *Delivery* means delivering the requested volume on time. When the three conditions defined by the term QCD are met, customers are satisfied.

QCD activities bridge such functional and departmental lines as research and development, engineering, production, sales, and after-sales service. Therefore, cross -functional collaborations are necessary, as are collaborations with suppliers and dealers. It is top management's responsibility to review the current position of the company's QCD in the market - place and to establish priorities for its QCD improvement policy.(Imai 1986: 34)

**Remark:** So far this literature review has entailed from the definition of Kaizen to the constituents and process. I believe it gives a definite idea of what Kaizen is what is needed to implement it. I would like to conclude this section by quoting "Kaizen and successful implementation" from Thessaloniki 2006.

## 2.6 Kaizen and Successful Applications

Realizing that the Kaizen methodology originated in Japan in response to the oil crisis in the early ‘70’s, it is easy to understand why it developed so much. Also the kaizen attitude helps us to explain why Japanese firms are so exploiting new technology, even when they are not its originator. Kaizen-driven firms do not suffer from “not invented here” syndrome. Ideas are not the exclusive outcomes of R&D department, corporate planning, or market research; every new idea is welcomed and new ‘channels’ are forsaken. An example of Kaizen’s effectiveness is Nissan’s experience with welding robots. First introduced in 1973 and within a decade cut work time per unit by 60 percent and increased overall production efficiency by 20 percent. These gains were achieved through a series of Kaizen programs that searched out improvements that cut time by as little as half a second. The programs, initiated within three to six months of one another, formed a staircase that each step was secured before the next to rise Kaizen practices can deliver breakthrough improvements in the range of 40-60%. But what about Kaizen application elsewhere than in Japan? In U.S.A. some managers even now do not recognize the tremendous value that Kaizen can bring. Kaizen became a buzzword in U.S. industry in the 1980s when American companies tried to copy the quality assurance programs used by Toyota Motor Corp. and other Japanese manufacturing companies. However, to adapt its dramatic potential to the more creative and self-directed American and also European culture, it was developed a participative approach, customized for the circumstances, allows the team itself, and not the "Sensai" (Kaizen expert/facilitator) to problem-solve and decide on the solutions that are appropriate for the process. This puts more pressure on the facilitator to teach, coach and guide, rather than direct the team. The results of the participative Kaizen

American Styleapproaches are that the results are better sustained because the people themselves make the key decisions, and the learning process is thus better reinforced, because it is active rather than passive. Some leading manufacturers in USA are now utilizing the process known as "Kaizen American Style" which results that companies are expanding its use to transform their businesses from end to end, becoming lean manufacturers. Kaizen American Style is the umbrella methodology that successfully embraces JIT, TQM, self directed work teams, and modern industrial engineering approaches into a working system that achieves dramatic and sustainable breakthrough process improvements. Kaizen American Style’s major tools are:

Concepts of 'Takt', One-Piece-Flow, Standard Work, 5 S, Visual Systems, Kanban, 8 Wastes and Set-Up Reduction. Masaaki Imai, chairman of Japan's Kaizen Institute in Tokyo and author of the 1986 book Kaizen: The Key to Japan's Competitive Success, said in an interview that kaizen applied in American companies today in isolated instances, such as within one plant, instead of company-wide. Also continues that kaizen appears in only one form, such as total quality management or just-in-time production. "The problem in most American companies is that the impetus for change is taken by middle management and often top management is not involved," he said. "But middle management does not have enough resources." Imai says top executives are to blame. He also warns that intensifying global competition will only make kaizen even more important. "In today's world, competition is so tough that if you don't have this kaizen spirit, you won't survive," Imai said. "This is a tough world. The customers are more and more demanding."

In western style Kaizen a lot of researchers argue that the following elements must be included:

• Highly committed top management, to both rapid improvement and new ideas.

• Highly trained and experienced facilitators for the assessment phase, the event, and the follow-up.

• Specific goals and objectives with a well-developed and clear mandate.

• A balanced, multi-disciplinary team for the event and to sustain the momentum.

• Professional team education and preparation.

• Clearly defined roles of the participants; process owner, team leader and co-leader and Kaizen consultant.

• Commitment to follow-up and sustain the improvements made. (Thessaloniki 2006:36-41)

**Final remark:** the literature review for this research mainly focused on two books, Thessaloniki and Gemba Kaizen because it is the researcher's belief that the ideas encompassed in these two books thoroughly explains of what Kaizen is to any reader. And let the reader note that almost all the literatures on this subject originate from Massaki Imai's: *Kaizen: the key to Japan's competitive success.*

# CHAPTER THREE

# DATA PRESENTATION, INTERPRETATION AND ANALYSIS

In the last two chapters I have tried to see the overall introduction of the subject under study, the background of the company and the review of related literature. In this chapter, presentation, analysis and interpretation of data which was collected first hand by means of questionnaires and interview are done. The analysis of data collected by means of questionnaires was analyzed by using SPSS V16 and narrative analysis was employed to analyze data collected by means of interview.

This chapter is divided into six sub sections, the first sub section is the analysis of the background of the respondents, the second sub section is the analysis of questions categorized under the understanding and implementation of Kaizen thirteen question were analyzed in this section, the third section is the analysis of questions under the category production efficiency, five questions were analyzed under this sub section, the fourth sub section is the analysis of questions under the category: difference between previous Management practice and Kaizen, seven questions were analyzed under this sub section, the fifth sub section is the analysis of questions under the last category: training and assessment under this category five questions were analyzed and the last sub section is the narrative analysis of answers that were given to the interview questions triangulated with the response from questionnaires.

## 3.1 Respondents Profile

This is the first sub topic which deals with the analysis of general background of the respondents with respect to sex, age, education level and work experience. A total of 80questionnaires were dispersed and 67 were collected which is a response rate of 83.75%.

**Table 1: Background of Respondents**

| | **Range** | **frequency** | **Percentage** |
|---|---|---|---|
| **Sex of the respondents** | Male | 67 | 100 |
| | Female | 0 | 0 |
| **Age of the respondents** | 18-29 | 5 | 5.7 |
| | 30-39 | 42 | 47.7 |
| | 40-49 | 20 | 22.7 |
| **Education level of the respondents** | Finished 8th grade | 12 | 13.6 |
| | Finished 10th grade | 6 | 6.8 |
| | Certificate and above | 49 | 55.7 |
| **Experience of the respondents** | 2 years and below | 0 | 0 |
| | 2-5 years | 0 | 0 |
| | 5 years and above | 67 | 100 |

In regard to sex all the respondents 67 (100%) of them are males this is due to the fact that all the respondents are factory level workers of the company; this shows that females are not employed as factory workers.

Most of the respondents 42 (47.7%) of them are between the ages of 18 and 29, the second largest respondents 20 (22.7%) lie between the ages of 40 and 49 and the least number of respondents 5 (5.7%) lie between the ages of 18 and 29. This is an indication that the factory workers are mostly middle aged males which is a further indication of maturity and experience of respondents.

The majority of the respondents 49 (55.7%) are certificate and above holders, while the second largest number of respondents 12 (13.6%) have finished 8th grade and the least number of

respondents 6 (6.8%) have finished 10th grade. This is an indication that most of the respondents are qualified for their job.

All of the respondents have work experience of 5 years and above, this is due to specific requirement from the student researcher that the respondents have at least 5 years of work experience. This was done because these are the employees who can analyze the difference between previous management practice and Kaizen because they were at the company before and after Kaizen.

## 3.2 Analysis of Findings of the Study

The analyses of the findings are especially categorized for the purpose of answering the basic research questions. The first category is the Understanding and Implementation of Kaizen. Thirteen questions were specifically designed to be included in this category, the answer of the respondents for the questions are presented below in a tabular form.

**Table 2 Understanding and Implementation**

| Questions | Response | Frequency | Percent | Mean | SD |
|---|---|---|---|---|---|
| 1. Kaizen is helping productivity in my section | Strongly disagree | 0 | 0 | 4.43 | 0.499 |
| | Disagree | 0 | 0 | | |
| | Neutral | 0 | 0 | | |
| | Agree | 38 | 56.7 | | |
| | Strongly agree | 29 | 43.33 | | |
| 2. I am frequently asked to contribute on my field of practice | Strongly disagree | 0 | 0 | 4 | 0.478 |
| | Disagree | 0 | 0 | | |
| | Neutral | 0 | 0 | | |
| | Agree | 67 | 100 | | |
| | Strongly agree | 0 | 0 | | |
| 3. My opinions are valued by the Management | Strongly disagree | 0 | 0 | 3.66 | 0.478 |
| | Disagree | 0 | 0 | | |
| | Neutral | 23 | 34.3 | | |
| | Agree | 44 | 65.7 | | |
| | Strongly agree | 0 | 0 | | |
| 4. I am satisfied with my work because I am contributing to make it better | Strongly disagree | 0 | 0 | 2.96 | 0.589 |
| | Disagree | 13 | 19.4 | | |
| | Neutral | 44 | 65.7 | | |
| | Agree | 10 | 14.9 | | |
| | Strongly agree | 0 | 0 | | |
| 5. I am becoming better at my work | Strongly disagree | 0 | 0 | 3.93 | 0.265 |

| | | | | | |
|---|---|---|---|---|---|
| | Disagree | 0 | 0 | | |
| | Neutral | 5 | 7.5 | | |
| | Agree | 62 | 92.5 | | |
| | Strongly agree | | | | |
| 6. Kaizen has helped change my life not only as an employee of this organization but as a person as well | Strongly disagree | 0 | 0 | 3.03 | 0.797 |
| | Disagree | 20 | 29.9 | | |
| | Neutral | 25 | 37.3 | | |
| | Agree | 22 | 32.8 | | |
| | Strongly agree | 0 | 0 | | |

The total response for the first question under this category is in the 'agree' and strongly agree' range. 38 (56.7%) of the respondents agreed to this question while 29 (43.33%) of them strongly agreed. The mean value for this question is 4.43 which approach 4, which is the 'agree' choice for this question. This indicates that the respondents have agreed to the statement 'Kaizen is helping productivity in my section'. But the standard deviation, which is 0.499 is further away from 4 and shows that there's high inconsistency in responses, this implies that the majority of response being on two alternatives out of the five.

The response for the second question under this category is in total agreement. All 67 (100%) respondents have agreed that they're frequently asked to contribute in their field of practice. The mean for this question is 4 while the standard deviation is 0.478, again there's high inconsistency in responses to this question because only one alternative dominated the response. This implies that all the respondents unequivocally believe that they're frequently asked by the management to contribute to their work.

The third question is answered in the range between neutral and agree. 22 (34.3%) of the respondents have answered neutral to this question while 44 (65.7%) have agreed. The mean and standard deviation for this question are 3.66 and 0.478 respectively, the mean is closer to 4 so the respondents have averagely agreed that their opinions are valued by the Management again

there's high inconsistency in response for this question. This implies that most respondents believe that their opinions are valued by the management.

The fourth question was answered in the range 'disagree' to 'Agree' 13 (19.4%) of the respondents disagreed, 44 (65.7%) were neutral and only 10 (14.9%) agreed. The mean is 2.96 so it's fair to say the average response to this question is neutral, the standard deviation is 0.589, and this is a sign of high inconsistency in responses. This implies that most respondents don't believe they're contributing to make their work better.

The statement I am becoming better at my work was given 5 (7.5%) neutral and 62 (92.5%) agree responses. The mean is 3.93 and the standard deviation is 0.265, there is inconsistency in response and the average response for this statement is agreed. This implies that the respondents believe that they are getting better at their work.

20 (29.9%) disagree, 25 (37.3%) are neutral and 22 (32.8%) agree to the sixth statement on the table. The mean is 3.03 which can be approximated to 3 and the standard deviation is 0.797, the average response for this statement is neutral. This implies that there's uncertainty to whether Kaizen has helped them change their lives on a personal level or not.

**Table 3 Understanding and implementation!**

| Questions | Response | Frequency | Percent | Mean | SD |
|---|---|---|---|---|---|
| 7. Kaizen didn't help change my life outside of work | Strongly disagree | 0 | 0 | 2.91 | 0.733 |
| | Disagree | 21 | 31.3 | | |
| | Neutral | 31 | 46.3 | | |
| | Agree | 15 | 22.4 | | |
| | Strongly agree | 0 | 0 | | |
| 8. Kaizen is just a Management practice and nothing more | Strongly disagree | 0 | 0 | 2.91 | 0.753 |
| | Disagree | 22 | 32.8 | | |
| | Neutral | 29 | 43.4 | | |
| | Agree | 16 | 23.9 | | |

| | | | | | |
|---|---|---|---|---|---|
| | Strongly agree | 0 | 0 | | |
| 9. Kaizen only works for teams not individuals | Strongly disagree | 0 | 0 | 2 | 0 |
| | Disagree | 67 | 100 | | |
| | Neutral | 0 | 0 | | |
| | Agree | 0 | 0 | | |
| | Strongly agree | 0 | 0 | | |
| 10. Kaizen works only when every employee of the organization are involved | Strongly disagree | 0 | 0 | 4.49 | 0.504 |
| | Disagree | 0 | 0 | | |
| | Neutral | 0 | 0 | | |
| | Agree | 34 | 50.7 | | |
| | Strongly agree | 33 | 49.3 | | |
| 11. Over production has decreased after the implementation of Kaizen | Strongly disagree | 10 | 14.9 | 2.78 | 1.204 |
| | Disagree | 20 | 29.9 | | |
| | Neutral | 19 | 28.4 | | |
| | Agree | 11 | 16.4 | | |
| | Strongly agree | 7 | 10.4 | | |
| 12. Kaizen is only useful to increase production | Strongly disagree | 0 | 0 | 2.97 | 0.627 |
| | Disagree | 14 | 20.9 | | |
| | Neutral | 41 | 61.2 | | |
| | Agree | 12 | 17.9 | | |
| | Strongly agree | 0 | 0 | | |
| 13. Kaizen will not have any effect on the | Strongly | 0 | 0 | 2.54 | 0.502 |

personal lives of employees

| | | |
|---|---|---|
| disagree | | |
| Disagree | 31 | 46.3 |
| Neutral | 36 | 53.7 |
| Agree | 0 | 0 |
| Strongly agree | 0 | 0 |

The seventh question was responded to by a majority of 31 (46.3%) neutrality, 21 (31.3%) disagreement and 15 (22.4%) agreement. The mean and standard deviation are 2.91 and 0.733 respectively which is an indication that the average response is neutrality or indifference, while the responses are highly inconsistent.

The eighth statement was responded to by 22 (32.8%) disagreement, 29 (43.4%) neutrality and 16 (23.9%) agreement. The mean to this statement is 2.91 which is closer to 3 thus the respondents are neutral to this statement while in the meantime there's high inconsistency because the standard deviation is 0.753.

By having 100% disagreement and a mean of 2 to the ninth statement, the respondents have unanimously agreed that Kaizen doesn't not only work for teams but individuals as well.

34 (50.7%) of the respondents have agreed and 33 (49.3%) have strongly agreed that Kaizen only works when every employee of the organization is involved. This is one of the questions which tests the general understanding of Kaizen and this response shows that a cumulative agreement with a mean of 4.49 and standard deviation 0.504 which means there is high inconsistency of response, this due to the respondents choosing only two responses from the given five alternatives.

The eleventh statement is by far the one which got diverse responses in this category. 10 (14.9%) strongly disagree, 20 (29.9%) disagree, 19 (28.4%) are neutral, 11 (16.4%) agree and 7 (10.4%) strongly agree but the mean is 2.78 which could be approximated to 3 and the standard deviation is 1.204 this means there's lesser inconsistency of responses to this statement than the previous ten question and the average response is neutral, which is a further indication of indifference or uncertainty of respondents.

The twelfth statement was responded to 14 (20.9%) disagreement, 41 (61.2%) neutrality and 12 (17.9%) agreement which gives a mean of 2.97 which is of course an approximate to 3 and makes the average response to this question neutral. The standard deviation is 0.627 which shows inconsistency. This implies average response of neutrality shows doubt to whether Kaizen's only usefulness is to increase productivity or not, furthermore this can be seen as a lack of confidence to assert Kaizen's uses in other areas than production.

The last question under this category was responded to by 31 (46.3%) disagreement and 36 (53.7%) neutrality giving a mean of 2.54 which is an approximate of 3 thus making the average response neutral and with a standard deviation of 0.502 we can conclude that there's inconsistency in Reponses. This implies that average response being neutral shows uncertainties, a significant number of the respondents have disagreed which shows that they think Kaizen has affected their personal lives.

The Majority of the questions under this category were answered with an average response of neutrality. From this we can say that the respondents are either indifferent or uncertain about some of the questions. The first, the second, the fifth and the tenth questions were given an average response of agree, these questions were designed to see the understanding of the absolute basic assumptions of Kaizen, which according to their responses the respondents have.

### 3.2.2 Production efficiency

This category consists of five simple questions whose responses are indicated below in a tabular form.

**Table 3 Production efficiency**

| Items | Response | Frequency | Percent | Mean | SD |
|---|---|---|---|---|---|
| 1. Wastage in production has significantly decreased after Kaizen was implemented | Strongly disagree | 0 | 0 | 4.42 | 0.497 |
| | Disagree | 0 | 0 | | |
| | Neutral | 0 | 0 | | |
| | Agree | 39 | 58.2 | | |

| | | | | | |
|---|---|---|---|---|---|
| | Strongly agree | 28 | 41.8 | | |
| 2. Over production has decreased after the implementation of Kaizen | Strongly disagree | 10 | 14.9 | 2.78 | 1.204 |
| | Disagree | 20 | 29.9 | | |
| | Neutral | 19 | 28.4 | | |
| | Agree | 11 | 16.4 | | |
| | Strongly agree | 7 | 10.4 | | |
| 3. Inventory level has decreased after the implementation of Kaizen | Strongly disagree | 10 | 14.9 | 2.78 | 1.204 |
| | Disagree | 20 | 29.9 | | |
| | Neutral | 19 | 28.4 | | |
| | Agree | 11 | 16.4 | | |
| | Strongly agree | 7 | 10.4 | | |
| 4. The feedback from customers is good since the implementation of Kaizen | Strongly disagree | 0 | 0 | 4.30 | 0.523 |
| | Disagree | 0 | 0 | | |
| | Neutral | 2 | 3 | | |
| | Agree | 43 | 64.2 | | |
| | Strongly agree | 22 | 32.8 | | |
| 5. Low inventory is a sign of effectiveness of Kaizen | Strongly disagree | 0 | 0 | 4.34 | 0.478 |
| | Disagree | 0 | 0 | | |
| | Neutral | 0 | 0 | | |
| | Agree | 44 | 65.7 | | |
| | Strongly agree | 23 | 34.3 | | |

The first question under this section has received a response of 39 (58.2%) agree and 28 (41.8%) strongly agree. It is obvious that there are inconsistencies in responses because out of five response options only two were selected. The mean of responses for this statement is 4.42 which is an approximate of 4 and the standard deviation is 0.497. The cumulative response to this question shows that Kaizen has been effective in eliminating waste.

The second statement received diverse responses, 10 (14.9%) strongly disagree, 20 (29.9%) disagree, 19 (28.4%) are neutral, 11 (16.4%) agree and 7 (10.4%) strongly agree, these responses gave a mean of 2.78 which approximates to 3 which means the average response is neutral. The standard deviation of 1.204 shows less inconsistency in responses than the first statement of this

category. Despite an average response of agreement to the first question the response to the second question shows that most of the respondents are uncertain whether overproduction ha decreased or not, furthermore overproduction is considered as a waste in Kaizen so the responses to the first and second question don't complement each other.

The third statement was responded to by 10 (14.9%) strongly disagree, 20 (29.9%) disagree, 19 (28.4%) neutrality, 11 (16.4%) agreement and 7 (10.4%) strong agreement. The mean for these responses came to be 2.78 and a standard deviation of 1.204. The responses to this question is almost identical to the response of the previous question, the average response is again neutral. This is yet again another indication of uncertainty to whether Kaizen has been efficient in eliminating waste because over inventory, which is a result of overproduction is considered as a waste.

The fourth statement in this category received a 2 (3%) neutral, 43 (64.2%) agreement and 22 (32.8%) strong agreement, the mean is 4.3 which is an average response of agreement to this statement. The standard deviation is far from the mean which again shows inconsistency. Most of the customers think that the feedback from customers is good since the implementation of Kaizen but the one thing this statement or response doesn't show is that the clear link between Kaizen and customer satisfaction.

The fifth and the last statement for this category received 44 (65.7%) agreement and 22 (34.3%) strong agreement. The mean 4.34 shows that the average response for this question from respondents is agreement 4. A 0.478 standard deviation shows inconsistency in responses but like I've mentioned above only two responses were chosen from five alternatives so the inconsistency was bound to happen. This question tests the understanding of Kaizen of the respondents in regard to production efficiency. The average response of agreement means that the respondents know that over inventory and over production are a sign of ineffectiveness of Kaizen, which in turn validates their response to the second and the third question.

### 3.2.3 Difference between previous Management practice and Kaizen

The table below consists of question which attempt to determine the differences between previous Management practice and Kaizen. The table consists of seven question all of which will be analyzed and interpreted accordingly.

**Table 4 Difference between previous Management practice and Kaizen**

| Items | Response | Frequency | Percent | Mean | SD |
|---|---|---|---|---|---|
| 1. The chain of command has become more flexible after the implementation of Kaizen | Strongly disagree | 0 | 0 | 2.91 | 0.811 |
| | Disagree | 25 | 37.3 | | |
| | Neutral | 23 | 34.3 | | |
| | agree | 19 | 28.4 | | |
| | Strongly agree | 0 | 0 | | |
| 2. Priority has been given to the process than the employees after the implementation of Kaizen | Strongly disagree | 0 | 0 | 2.91 | 0.645 |
| | Disagree | 17 | 25.4 | | |
| | Neutral | 39 | 58.2 | | |
| | Agree | 11 | 16.4 | | |
| | Strongly agree | 0 | 0 | | |
| 3. The Management has begun to see problems in processes rather than people | Strongly disagree | 0 | 0 | 3.04 | 0.684 |
| | Disagree | 14 | 20.9 | | |
| | Neutral | 36 | 53.7 | | |
| | Agree | 17 | 25.4 | | |
| | Strongly agree | 0 | 0 | | |
| 4. Top level Management is becoming more involved with what employees do | Strongly disagree | 0 | 0 | 3.07 | 0.785 |
| | Disagree | 18 | 26.9 | | |
| | Neutral | 26 | 38.8 | | |
| | Agree | 23 | 34.3 | | |
| | Strongly agree | 0 | 0 | | |

| | | | | | |
|---|---|---|---|---|---|
| 5. Moral has increased among the workforce | Strongly disagree | 0 | 0 | 3.01 | 0.639 |
| | Disagree | 13 | 19.4 | | |
| | Neutral | 40 | 59.7 | | |
| | Agree | 14 | 20.9 | | |
| | Strongly agree | 0 | | | |
| 6. There is a better suggestion system | Strongly disagree | 0 | 0 | 3.04 | 0.684 |
| | Disagree | 14 | 20.9 | | |
| | Neutral | 36 | 53.7 | | |
| | Agree | 17 | 25.4 | | |
| | Strongly agree | 0 | 0 | | |
| 7. There's a better incentive system | Strongly disagree | 0 | 0 | 2.94 | 0.833 |
| | Disagree | 25 | 37.3 | | |
| | Neutral | 21 | 31.3 | | |
| | Agree | 21 | 31.3 | | |
| | Strongly agree | 0 | 0 | | |

The first statement concerning the chain of command was given 23 (37.3%) of disagreement, 23 (34.3%) neutrality and 19 (28.4%) agreement. The mean or average response for this statement is 2.91 which give an approximate average response of neutrality to this question, out of the five alternative only three were chosen so the standard deviation is 0.811 which shows high inconsistency. The average response of neutrality to this statement could be from uncertainty or anxiety because Kaizen demands flexibility in chain of command, the work should come first but most of the respondent are in doubt to whether the management has become flexible or not.

The second statement was given a response of 17 (25.4%) disagreement, 39 (58.2%) neutrality and 11 (16.4%) agreement. This indicates that there is an inconsistency in response because the mean is 2.91 which make the average response neutral while the standard deviation is 0.645. This response is another indication that most of the respondents have observed little difference between previous management style and Kaizen because if Kaizen is effectively implemented priority should be given to the process and the average response should have been agreement.

The third statement received a 14 (20.9%) disagreement, 36 (53.7%) neutrality and 17 (25.4%) agreement with a mean of 3.04 and standard deviation of 0.684 this shows that the average response is neutral and that there is a higher deviation in response than the previous question in this category. This response is also another indication of doubt or uncertainty amongst respondents to whether the management has begun to see the problem in the process rather than the people.

The fourth statement shows that the respondents have an average of neutral response with 18 (26.9%) disagreement, 26 (38.8%) neutrality and 23 (34.3%) agreement and the mean being 3.07 with a standard deviation of 0.785, which again shows inconsistency in response. . Top level management should be more involved in the work process of low level employees but the average response of neutrality is an indication of the respondents' uncertainty to whether top level management is becoming more involved with their work or not.

The fifth statement received a response of 13 (19.4%) disagreement, 40 (59.7%) of neutrality and 14 (20.9%) of agreement, with a mean of 3.01 making the average response neutral, and shows inconsistency in response with a standard deviation of 0.639. Any management approach, whether it is kaizen or not should be able to increase the moral of the workforce but the average response shows uncertainty of the respondents, which means their moral hasn't increased from its previous level but this doesn't mean that it has declined either, it simply means Kaizen had no effect in increasing their morals.

The sixth statement shows a response rate of 14 (20.9%) disagree, 36 (53.7%) neutral and 17 (25.4%) agreement with a mean of 3.04 which is an average response of neutrality and inconsistency with a standard deviation of 0.684. Having a good and effective suggestion system

is one difference that kaizen is expected to have on the management practice but an average response of neutrality means most of the respondents doubt whether this is true or not.

The seventh and last statement of this category received a 25 (37.3%) disagreement, 21 (31.3%) of neutrality and 21 (31.3%) of agreement with a 2.94 mean and 0.833 standard deviation, making the average response neutral and the responses inconsistent. The implementation of Kaizen is expected to have a better incentive system than conventional management, but the response of most of the respondents shows their doubt or uncertainty of this.

### 3.3.4 Training and assessment

This is the last category of the quantitative analysis of this research, this category consists of five question attempted to clarify the training and assessment of Kaizen at Maru Metal Industries. It is represented in table below.

**Table 5 Training and assessment**

| Items | Response | Frequency | Percent | Mean | SD |
|---|---|---|---|---|---|
| 1. Sufficient training was given | Strongly disagree | 0 | 0 | 3.97 | 0.738 |
| | Disagree | 0 | 0 | | |
| | Neutral | 19 | 28.4 | | |
| | Agree | 31 | 46.3 | | |
| | Strongly agree | 17 | 25.4 | | |
| 2. Continuous assessment is conducted | Strongly disagree | 0 | 0 | 3.22 | 0.42 |
| | Disagree | 0 | 0 | | |
| | Neutral | 52 | 77.6 | | |
| | Agree | 15 | 22.4 | | |
| | Strongly agree | 0 | 0 | | |
| 3. Training was conducted | Strongly disagree | 0 | 0 | 3.22 | 0.42 |

| | | | | | |
|---|---|---|---|---|---|
| | Disagree | 0 | 0 | | |
| | Neutral | 52 | 77.6 | | |
| | Agree | 15 | 22.4 | | |
| | Strongly agree | 0 | 0 | | |
| 4. There are various Kaizen events | Strongly disagree | 0 | 0 | 3.22 | 0.42 |
| | Disagree | 0 | 0 | | |
| | Neutral | 52 | 77.6 | | |
| | Agree | 15 | 22.4 | | |
| | Strongly agree | 0 | 0 | | |
| 5. Employee empowerment is increasing | Strongly disagree | 0 | 0 | 3.22 | 0.420 |
| | Disagree | 0 | 0 | | |
| | Neutral | 52 | 77.6 | | |
| | Agree | 15 | 22.4 | | |
| | Strongly agree | 0 | 0 | | |

For the first statement 19 (28.4%) of the respondents were neutral, 31 (46.3%) of them agreed and 17 (25.4%) strongly agreed, giving a mean of 3.97 which make the average response is agree but the 0.738 standard deviation shows that theirs is inconsistency in response. Most of the respondents agree that sufficient training was given but this doesn't necessarily prove that the training given was effective.

The second statement was responded with 52 (77.6%) neutrality and 15 (22.4%) agreement with a mean of 3.22 and standard deviation 0.42, the responses which average to neutrality are highly inconsistent. Although most of the respondents have agreed for sufficient training been given, they are in doubt or uncertain whether continuous assessment is conducted or not, which is an integral part of the continuous training process.

The third statement received 52 (77.6%) neutrality and 15 (22.4 %) agreement this shows that out of the five alternatives the respondents only used two so there high inconsistency with a

mean of 3.22 and standard deviation of 0.42. This statement inquires whether training was given at all, in the first question of this category most of the respondents have agreed that sufficient training was given but on this statement most of the respondents have responded with neutrality. This is a contradiction which shows either error or carelessness of the respondents in filling this question and correlating it with the first one.

The fourth statement received a 15 (22..4%) agreement and 52 (77.6%) neutrality this shows that out of the five alternatives the respondents only used two so there high inconsistency with a mean of 3.22 and standard deviation of 0.42. The high rate of response in neutrality to this question is an indication of either the respondents don't know of Kaizen events or they haven't observed or participated in any.

The fifth and last statement received a 52 (77.6) neutrality and15 (22.4 %) agreement this shows that out of the five alternatives the respondents only used two so there high inconsistency with a mean of 3.22 and standard deviation of 0.42. Since kaizen considers every employee as an expert in his respected field of practice, employee empowerment should have increased but an average response of neutrality means that the respondents are in doubt to whether this happened.

To answer the basic research questions which were not answered by the questionnaires or ot enhance those that were and triangulate with the response from employees an interview was conducted. The first interview question concerned the understanding of Kaizen among the workforce; it was a straight forward question. "Understanding is something difficult to measure but I can say that all the employees who have been through training have a reasonably fair understanding of what Kaizen is and what it's meant for, otherwise we wouldn't be selected as one of successful companies to implement Kaizen" from this quote we can conclude that the top management is convinced that understanding of Kaizen is good among the workforce, the second question is about the conflicts that arose between Kaizen and the old Management practice, "I have to say, it's a new way of thinking for us, Kaizen especially helped our company eliminate waste and make production more efficient . . . . since it's something new conflicts are bound to happen but the biggest challenged we've face in the beginning was attuning our production line and workers to the way of work style Kaizen demanded but we got through it." At this point there were some unanswered question, the kind of conflicts that should have happened were ones like loosening the chain of command, preparing an effective incentive system, this question was

forwarded and the reply was: “these things are basics to Kaizen and at some point they did happen with supervisors and mid-level managers, I can’t mention every single conflict that occurred but we handled whatever conflicts that have occurred efficiently and implemented Kaizen successfully” the third question concerned the defects in previous Management Practice: “like I’ve said we had a poor waste management system and a lot of time, energy and resource went for unnecessary tasks, Kaizen helped us improve on these short comings” the fourth question tried to sought out the limitation of Kaizen by asking whether it would be difficult to adopt new technology because Kaizen focuses on improving old ones: “It won’t be difficult, Kaizen simply helps you make adjustments to the already exsiting technology and make appropriate use of it for the current need, that is, if a new technology comes of course we’ll have to adopt it..... it’s a competition age.” Kaizen is not against new technologies rather it concerns the company to do the best they can with what they have until they can have the best, even after a new technology is adopted kaizen doesn’t stop there it’s a continuous process. This is the attitude of the Management of MMI. The fifth and last interview question is about helping employees adopt Kaizen in their personal lives. The reply to this question was: “There are three levels of Kaizen and one of them is personal Kaizen, if an individual doesn’t understand or practice Kaizen on a personal level then he can’t do it in group so training were given and will be given to help employees practice Kaizen on a personal level.” Empowering employees is important in Kaizen because employees are the most valuable assets.

# Chapter Four

# Summary, Conclusion and Recommendation

In the previous chapter data presentation, analysis and interpretation was given. In this chapter the summary of the basic findings conclusion and recommendation will be given.

## 4.1 Summary of major findings

- *S* Concerning Kaizen contribution in increasing productivity an average answer of agreement was given.
- *S* Kaizen works when employees are asked to contribute on their field of practice and when those suggestions are implemented. 67 (100%) of the respondents have agreed that they are frequently asked to contribute on their field of practice, which is a positive sign of Kaizen's implementation.
- *S* Employees will only contribute if the feel like their opinions are valued. 44 (65.7%) of the respondents think that their opinions are valued by the Management of the company, which is good because this will initiate them to contribute more and make the process better.
- *S* Concerning job satisfaction only 10 (14.9%) agree that they are satisfied with their jobs, this significantly small number shows that most of the respondents are unsatisfied with their jobs which could directly be linked with poor incentive system.
- *S* Improving on your work is highly encouraged by kaizen because when you improve more, you can contribute more. 62 (92.5%) of the respondents agree that they are getting better at their work, which is a positive thing for the company and improvement on the whole production process.
- *S* An average of neutral answer 25 (37.3%) was given to the question whether kaizen has helped change the respondent's lives outside of work, this means most of the respondents don't understand that kaizen works better when you start the change from your personal life.

- Only 15 (22.4%) of the respondents agree that Kaizen didn't helped change their live outside of work. This means that most of the respondents haven't implemented kaizen on a personal level. This can attribute to poor training and follow up.
- Only 23.9% of the respondents agree that Kaizen is just a Management practice, this means most of the respondents think that kaizen is something more than a management practice but it doesn't exactly what it is besides being a management practice so we can't conclude that the respondents fully know what kaizen is all about.
- A cumulative of 18 (26.8%) of the respondents believe that over production has decreased after Kaizen. Overproduction is one of the seven mudas in kaizen so according to this we can concluded that kaizen has failed in eliminating waste
- Despite the statement above100% of the respondents agree and strongly agree that waste in production has decreased after Kaizen. We can conclude from this that the respondents didn't answer this question with the proper attention or they don't know that overproduction is considered a waste.
- All of the respondents agree and strongly agree that low inventory is a sign of effectiveness of Kaizen.
- An average of neutral 23 (34.3%) answer was given to question whether the chain of command has become more flexible or not. This is an indication that most of the respondents don't feel like the chain of command has loosened as it was expected after the implementation of kaizen.
- Priority has been given to the process than the employees after the implementation of Kaizen 39 (58.2%) of the respondents are neutral on this matter. This is an indication of a huge mishap because if priority isn't given to the process the whole idea of kaizen doesn't work.
- The Management has begun to see problems in processes rather than people only 36 (53.7%) of the respondents are neutral on this matter. This can also be considered as a major mishap because this statement and the one before it show that the management didn't show the expected change.
- Moral has increased among the workforce, only 14 (20.9%) of the respondents agree on this statement. This doesn't mean that moral has decreased, it only means that kaizen has failed in increasing the moral of the workforce.

S One of the essential things kaizen is expected to do is improve the incentive system. The majority 36 (53.7%) of the respondents are neutral which means they don't agree or that they are in doubt whether kaizen has improved the incentive system or not.

S The majority 31 (46.3%) of the respondents agree that sufficient training was given.

S Continuous assessment is one way of insuring continuous change but only 15 (22.4%) of the respondents agree that Continuous assessment is conducted which is a significantly low number.

## 4.2 Conclusion

Assessing understanding is a difficult thing but judging from the data obtained the understanding of kaizen, despite what the management of the company says is unsatisfactory because the basic concept of kaizen starts with changing one's personal life, making small improvement and finally insure their continuity. If each individual in the company could accomplish this, it would be very easy to implement and insure the continuity of kaizen.

The major problem faced by the company while implementing kaizen is attuning the production line in a kaizen style. This is expected because kaizen requires restructuring of production to make it more efficient. This could only be decided if one had observed a video recording of the previous production line and was able to compare it with what is currently happening, this wasn't possible so from a research point of view it is difficult to conclude but the other problems that had faced the company remain unsolved, especially problems concerning incentives.

From the principles of kaizen waste (muda) which can be overproduction and over inventory should be eliminated in order to say that the production process is efficient but there is over production and over inventory in the company which leads to the conclusion that the production process is not efficient.

There are several factors which differs kaizen from conventional management thus conflicts are bound to happen when kaizen is implemented. From the obtained data we can conclude that some of the conflicts are unresolved. For instance priority is not given to the process, the chain of command is not flexible enough, employees are not being empowered and the incentive system hasn't improved.

## 4.3 Recommendation

The company needs to make adjustments in their training and development program. Kaizen only works if every employee fully understands and internalizes the philosophy in their everyday lives. This can be done by giving intense training and psychological conditioning in order to make the principals of Kaizen a habit. Employees will perform in their best possible abilities and contribute to improve their work only when they make the principals of Kaizen a habit and habit takes long term commitment.

The incentive system should be given high emphasis. In kaizen the biggest incentive is making the employee feel that he's part of the company by properly taking his opinion and making amendments based on his opinions.

Every Kaizen guru especially Massaki Imai emphasizes that, the successful implementation and continuity of kaizen mainly depends on the commitment of top level management. This means top level management is the key players in making Kaizen work.

Understanding that there is no absolute Management philosophy is imperative. Kaizen is something that has evolved through time and it is still evolving. The company should take some of the things from kaizen and try to create their own way of doing work, just because the Japanese came up with this philosophy it doesn't necessarily make it suitable for Ethiopia.

There are several factors the company should consider; Kaizen is a long term commitment and the principals should be made a habit by every employee, top level Management's commitment is main factor in determining the success and continuity of Kaizen, understanding that there is no final solution to Management problems is important, kaizen is not an absolute philosophy, it evolves and its evolution comes from the employees and their contribution, stagnancy in process, production and employee motivation should be discouraged and the smallest contribution by any employee should be taken under consideration.

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# Appendices

# Appendix B

**St. Mary University**

**Faculty of Business**

**Department of Marketing Management**

**Interview questions for the head department directorates of AMSH**

**Interview questions for Marketing executives at Ambo Mineral Water S.C**

1. What are the criteria you consider before deciding to develop a new product?
2. Do you use need assessment or do you focus on creating demand?
3. What's your primary motive for developing a new product?
4. Who are the participants or functional groups in new product development decision making?
5. How do you select your target market?
6. Judging from your current situation do you think it's better to develop the market or the product?
7. What is the time frame you use before deciding a certain new product has failed or succeeded?

## DECLARATION

I the undersigned, declare that this senior essay is my original work prepared under the guidance of Ato Yimer Adem. All resources of material used to the manuscript have been dully accumulated.

Name: KIDUS DESSALEGN

Signature:_____

Placement: ST. MARY'S UNIVERSITY

Date:_____

## The Advisor Declaration

This senior essay has been submitted for examination with my approval as an advisor

Name:_____

Signature:_____

Date:_____